Aug. 9, 1932. R. G. WHITLOCK 1,870,541

METER PRESS

Filed Nov. 13, 1928 3 Sheets-Sheet 1

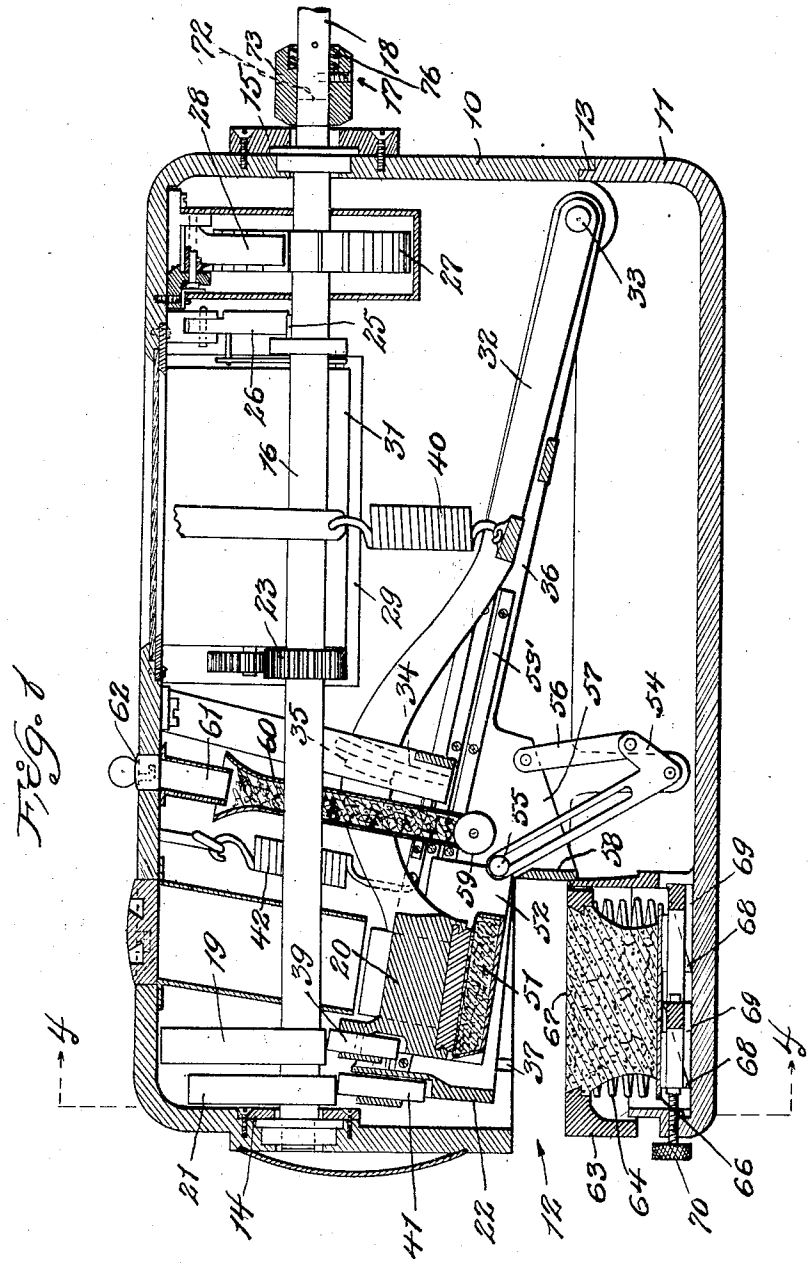


Fig. 1

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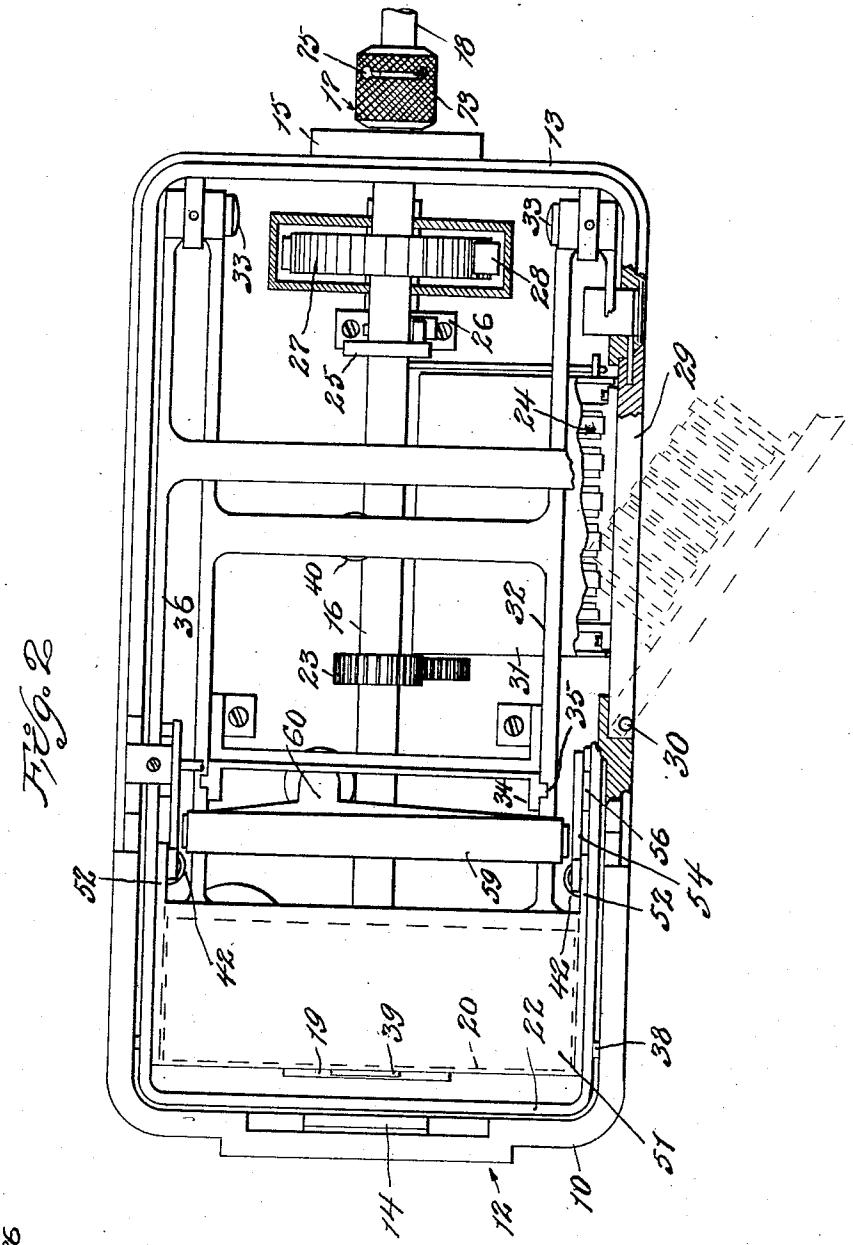


Fig. 2

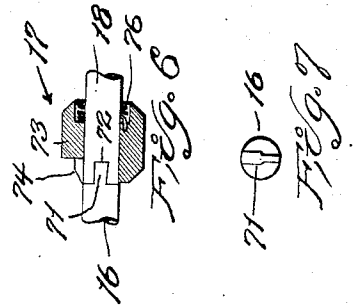


Fig. 6

Fig. 7

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METER PRESS

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Fig. 4

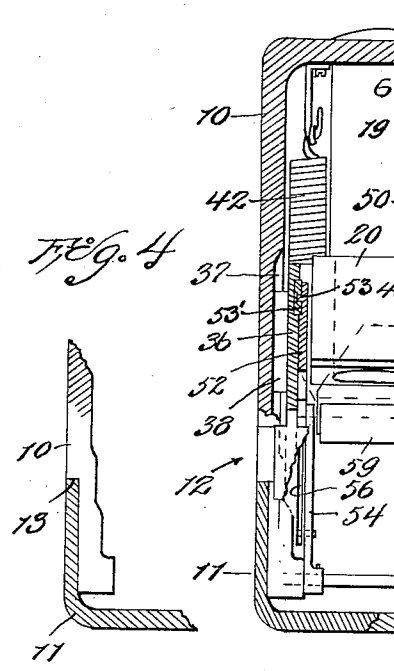


Fig. 3

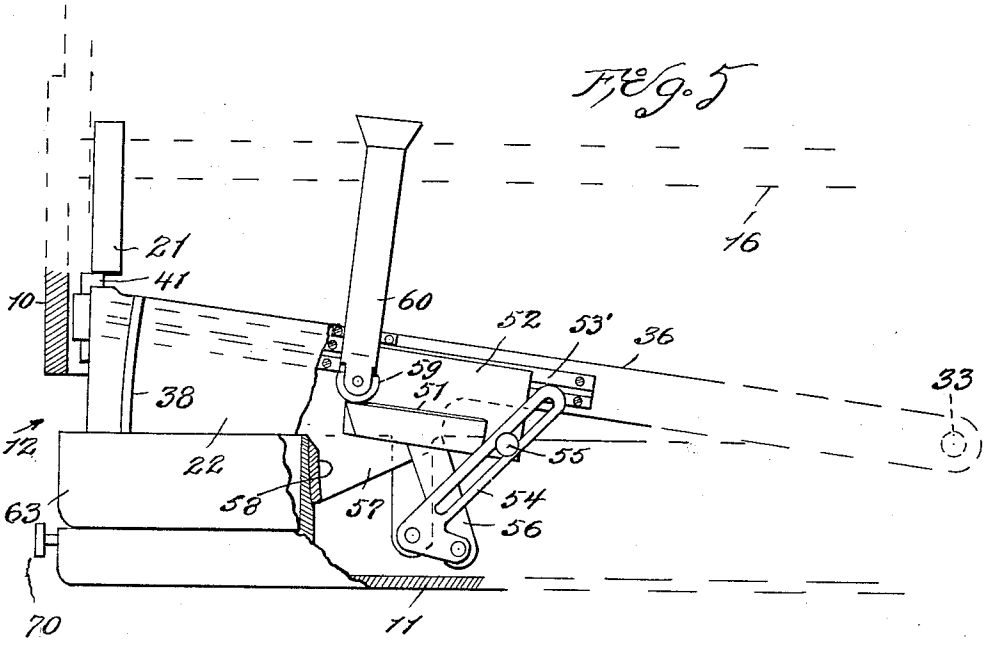


Fig. 5

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Patented Aug. 9, 1932 1,870,541

UNITED STATES PATENT OFFICE

RALPH G. WHITLOCK, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO RALPH G. WHITLOCK PATENTS, INC., OF LAS VEGAS, NEVADA, A CORPORATION OF NEVADA

METER PRESS

Application filed November 13, 1928. Serial No. 319,147.

This invention relates to improvements in machines in which indicia printing means are associated with meters for indicating the total number of impressions made and for limiting the use of the machine to a predetermined number of impressions.

More particularly my invention relates to the indicia imprinting of metered permit matter, such as mail pieces, admission or sales tickets and the like in that there is involved recording mechanism to be set by an authorized person for a given number of impressions, and which automatically prevents impressions after exhaustion of the preset meter number.

The present showing may be regarded as refinements of the printing head disclosed in a copending application entitled Printing press, filed by me on June 30, 1925, Serial Number 40,631.

Objects of my invention are:

To provide simplified means for directing and driving the printing member in a substantially right line path of movement.

To provide a guard for the printing member and an inking device which coact with a platen to provide continuous complete enclosure of the printing member to the end of preventing unauthorized impressions.

To provide a cushioned platen and platen carriage wherein the density of the cushion body and the tension of the carriage may be varied for purposes of grading the impression for adaptation to variably dimensioned and contoured impression receiving pieces.

To provide more convenient access to the meters for purposes of resetting and care.

To provide means for relatively moving the printing member and inking device whereby to assure certain and uniform inking.

To provide readily accessible means for supplying ink to the inking device.

To the above purposes my invention consists in certain details of the construction, arrangement and combination of parts as hereinafter fully, clearly and concisely described, definitely pointed out in my claims and illustrated by the accompanying drawings in which

Fig. 1 is a longitudinal sectional elevation of the meter press taken substantially on the median line with the printing member shown in non printing position.

Fig. 2 is an inverted plan view of the printing member, guard, inking device and their actuating means, with certain parts broken away and the meter shown by dotted lines in open, or accessible, position.

Fig. 3 is a transverse sectional elevation showing the actuating means for the printing member, guard and inking device, certain parts being broken away for clarity of illustration.

Fig. 4 is a sectional elevation, taken substantially in the line 4—4 of Fig. 1 showing a detail of the casing elements providing proper relative fitting and bearings for certain of the actuating parts.

Fig. 5 is a diagrammatical elevation of the guard and inking device as at the printing interval, certain parts being broken away and in section.

Fig. 6 is a detail sectional plan view of the coupling for relating the driven and driving shafts.

Fig. 7 is an end elevation of the driven shaft showing the cycle relating tenon.

Referring, by numerals, to the drawings, 10 and 11 designate respectively the upper and lower casing elements, which jointly form an enclosure for the operating mechanism and a throat 12 for the insertion, or movement, of the print material into, or through, the press. The casing elements are adapted as at 13 for proper relative fitting and positioning and secured as by means such as shown in the recited copending application.

The end walls of the upper casing element support bearings 14 and 15 in which is rotatably mounted the driven shaft 16, forming a drive for all the actuating parts of the press and which is arranged for connection with power as by a coupling 17, which provides readily separable and positive cycle relation with a driving, or motor, shaft 18.

The shaft carries a cam 19, for the operation of the printing member 20; a cam 21 for the operation of the guard box 22 for the

printing member; a spur gear 23 for operating the meters of which there is the resettable meter 24 shown, and a second totalizing meter, not shown, but similar to that shown in the recited copending application. The shaft also carries a locking element 25 which coacts with a meter controlled element 26 to prevent shaft rotation upon exhaustion of the present meter number, and the shaft further provides support for a unidirectional element, such as the ratchet wheel 27 acted upon by pawls 28 carried by the casing.

As shown the reset meter 24 is carried on a movable part of the casing, which by preference is a part of a side wall, or door, 29 mounted as by a hinge 30 to swing outwardly, as shown by dotted lines in Fig. 2. Secured to the casing surrounding the door opening is a housing 31 which prevents access to the interior of the casing proper and tampering with the actuating parts therein when the door is open.

The printing member is carried on a frame, or yoke 32, having a length substantially that of the casing and which is mounted on a pivot 33 for rocking motion providing an approximate right line path for the printing member, which path is further and positively defined by a track 34, fixed to the casing and grooves or followers 35, movable with the frame 32.

A frame, or yoke 36, similar to the frame 32 carries the recited guard box 22, which has a front wall, and two side walls and is open at its rear and the guard box frame is mounted for rocking motion on the recited pivot 33 and its path is positively defined as by tracks 37 and followers 38.

Carried by the printing member is an antifriction roller 39 which coacts with cam 19 for the movement of the member to printing position in opposition to a spring 40 which restores the member to elevated or non printing position.

Similarly the guard box carries a roller 41 for coaction with cam 21 and is provided with restoring springs 42.

As best shown in Fig. 3, the cam 19 is substantially of elliptical contour; bears decentered relation with the driven shaft 16 and includes in its face a short concentric surface 43 resident at one end of the major axis, for the determination of the upward limit of printing member movement; a relatively longer, concentric surface 44 at the opposite end of the major axis for determining the downward limit of printing member movement and at the sides of the surface 43 dwells 45 and 46 providing respectively a lag of printing member movement at the initiation of its movement from rest to printing position and a similar lag following its printing cycle and immediately preceding its restoration to rest position.

The cam 21 is substantially semicircular, its major face length 47 being concentric to provide holding the guard box in position to completely intercept the throat 12 during the entire movement of the printing member, in both directions across the throat; the cam face also includes a dwell 48 located medially of the face length 47 and cycle related to the recited surface 43 of the cam 19 whereby the guard box is held to its upward limit of movement synchronously with the printing member, and the face further includes face lengths 49 and 50 lying between the dwell 48 and the extremities of the major concentric length 47 and bearing such angular disposition downward relative to the dwells of the cam 19 as respectively affect downward movement of the guard box prior to downward movement of the printing member and similarly upward movement of the printing member prior to upward movement of the guard box.

The inking device comprises a pad 51 carried between cheeks 52, 52 mounted for lengthwise movements of the casing as by keys 53 on the cheeks and tracks 53′ on the arms of guard box yoke 36. The movement for the inking pad consists of bell cranks 54 whose long arms are related to the pad as by pin and slot connections 55 and whose short arms are related to the yoke 36 as by links 56.

Depending from each arm of the yoke 36 is a flange 57 to which the links 56 are pivotally connected and extending between the flanges is a guard wall 58 for interception of the throat when the guard box proper is in non intercepting position.

The ink supply to the pad comprises a roller 59 mounted on the guard box yoke in the path of the pad; a well, or supply tank, 60 in communication with the roller and open at its upper end and a filling spout 61 fixed to the casing and provided with a removable and replaceable closure 62.

Immediately under the throat 12 the end and two side walls of the casing element 11 are shortened, in height for the accommodation of the platen carriage 63 which is yieldingly supported as by springs 64 and which has limited upward movement as by the opposed ribs, shown at 65 in Fig. 3.

The springs are supported on a false bottom 66 which also furnishes support for the platen proper 67 which by preference is formed of soft rubber.

For impression grading there is provided means for varying the tension of the platen carriage springs and the density of the platen which is shown to comprise opposed wedges 68 and 69 and means such as the screw 70 to affect relative linear movement of the wedges and consequent raising or lowering of the false bottom.

The recited coupling 17 comprises a mortise joint and a guard which is movable to pro-

vide coupling and uncoupling and prevent separation when coupled.

By preference and as shown the tenon 71 is formed as an integral axial projection of the driven shaft 16, carried by the press, and the mortise 72 formed as an axial cut in the end of the driving, or motor shaft 18. To provide cycle relation of the shafts the tenon, as shown in Fig. 7 has graduated sectional dimensions transversely of the shaft and the mortise is correspondingly shaped to the end that there is requirement for definite shaft positioning prior to coupling which is accomplished only by fitting the thinner end of the tenon over the wider end of the mortise. The guard is tubular, preferably constructed as a sleeve 73 having a cut away 74 for covering or uncovering, upon rotation, the tenon and mortise when coupled and is held to either limit of its rotational movement by means of a bayonet joint 75 and spring 76.

To prevent axial separation of the two shafts the tenon and mortise, as shown in Fig. 6 are tapered axially.

By reason of the described timing of both the initiation and termination of the movement of the guard box relative to corresponding cycle movements of the printing member there is imparted to the ink pad a movement providing contact with the printing member only at the rest interval of the printing member, its movement to clear the printing member being first to drop or recede from the printing member as affected by joint actions of the face length 40 of the cam 21 and the dwell 45 of the cam 19, then the rapid and full movement of the pad in full clearance of the print member, and to be reinked, by the surface length 49 of cam 21 prior to initiation of the downward or impression movement of the print member as subsequently affected by a length on cam 19 immediately following the dwell 45, conversely the ink pad is restored to rest position against the print member by similar related lengths of cams 19 and 21.

The length 43 of cam 19 coacts with the dwell 48 of cam 21 to affect bringing the pad and printing member together with a "slap" or quick, sudden blow whereby to assure thorough inking of the print member.

The structure of the press may be varied in form without departure from my invention as hereinafter claimed. The showing of this description and the drawings being merely in illustration of one embodiment of my invention in response to the statutory requirement to applications for patents.

I claim:

1. A printing press of the character disclosed comprising a printing member; a guard therefor; means for directing the printing member and guard to substantially right line movements; and moving means for the printing member and guard, comprising cams having related lengths in their faces for timing the movements of the print member and guard.

2. A printing press of the character disclosed comprising a printing member; a guard therefor; means for directing the printing member and guard to substantially right line movements; and moving means for the printing member and guard, comprising cams having related lengths in their faces for timing the movements of the print member and guard and an inking device comprising an ink carrying element and a moving means therefor actuated from said guard.

3. A printing press of the character disclosed comprising a printing member; a guard continuously embracing the printing member; distinct supporting and directing means for the printing member and guard; driving means comprising a shaft and a pair of cams having related face lengths providing an operating cycle of the printing member having a lesser time interval than the operating cycle of the guard.

4. A printing press of the character disclosed comprising a printing member; a guard comprising elements continuously embracing the printing member and a guard element movable in a right line across the path of the printing member.

5. In a printing press of the character disclosed in combination a casing having a normally open throat; a platen adjacent the throat; a printing member; means for moving the printing member across the throat and toward and away from the platen; a guard continuously embracing the printing member; means for moving the guard; an inking device forming a guard for the type face of the said printing member when in non-printing position, and means actuated by the said guard for moving the inking device to clear the printing member when the printing member is moved to printing position; the moving means for the printing member, the guard and the inking device being time related to cause the guard and inking device to cover the sides and face of the the printing member and prevent access to the interior of the casing when the printing member is in non-printing position; to cause a longer time interval for the cycle operation of the guard than the printing member, and to cause the inking device to clear the path of the printing member in its cycle of operation.

6. In a printing press of the character disclosed, in combination a casing having a throat; a platen adjacent the throat; a pair of yokes pivotally supported in the casing; a printing member carried at the free end of one of the yokes; a guard box carried at the free end of the other yoke; antifriction rollers carried by the printing member and

guard box; a driven shaft rotatably mounted in the casing; a resettable meter controlled lock for the shaft; means for causing unidirectional rotational movement of the shaft; cams on the shaft for engagement with the antifriction rollers; an inking pad and means for actuating the inking pad upon movements of the yoke carrying the guard box.

7. In a printing press, a casing constructed with a throat, a platen mounted under adjustable tension adjacent said throat, a printing member, means for moving said printing member across said throat toward and away from said platen, a guard embracing said printing member, means for moving said guard in operative relation to said printing member, and an inking device for said printing member.

8. In a printing press, a casing constructed with a throat, a platen adjacent said throat, means for varying the density of said platen, a printing member, means for moving said printing member across said throat toward and away from said platen, a guard embracing said printing member, means for moving said guard in operative relation to said printing member, and an inking device for said printing member.

9. In a printing press, a casing constructed with a throat, a platen mounted under adjustable tension adjacent said throat, means for varying the density of the platen, a printing member, means for moving said printing member across said throat toward and away from said platen, a guard embracing said printing member, means for moving said guard in operative relation to said printing member, and an inking device for said printing member.

10. In a printing press, a casing constructed with a throat, a platen adjacent said throat, a printing member, means for moving said printing member across said throat toward and away from said platen, a guard embracing said printing member, means for moving said guard in operative relation to said printing member, an inking pad for said printing member, means for moving said inking pad under said printing member while said printing member is elevated to its uppermost position, means for moving said printing member downwardly slightly into effective contact with said inking pad, and then withdrawing said printing member slightly upwardly from said pad before the printing member is moved downwardly into printing position, and means for moving said inking pad from under said printing member while withdrawn slightly upwardly as aforesaid.

11. In a printing press, a casing constructed with a throat, a platen adjacent said throat, a printing member, means for moving said printing member across said throat toward and away from said platen, a guard embracing said printing member, means for moving said guard in operative relation to said printing member, an inking pad for said printing member, means for moving said inking pad under said printing member while said printing member is elevated to its uppermost position, means for moving said printing member downwardly slightly into contact with said inking pad, and then withdrawing said printing member slightly upwardly from said pad before the printing member is moved downwardly into printing position, means for moving said inking pad from under said printing member while withdrawn slightly upwardly as aforesaid, and ink distributing means for distributing ink over the inking surface of said inking pad when said pad is moved to and from said printing member.

12. In a printing press, a casing constructed with a throat, a platen adjacent said throat, a pair of yokes pivotally mounted in said casing, a printing member carried in the free end of one of said yokes, a guard, embracing said printing member, carried at the free end of said other yoke, a driven shaft rotatably mounted in said casing, means whereby said yokes are swung up and down upon rotation of said driven shaft for operating said guard and said printing member, an inking pad, an inking pad carriage slidably mounted on said guard yoke, a bell crank pivotally mounted in said casing, a link connecting one arm of said bell crank to said guard yoke, the other arm of said bell crank being provided with a longitudinal slot, a pin on said carriage projecting through said bell crank slot, whereby said inking pad carriage is reciprocated, on said guard yoke, to move said inking pad under said printing member, when said printing member is elevated, at one time, to its highest point, and for moving said inking pad from under said printing member, when the printing member is moved, at another time, upwardly to its highest point, said means for swinging said printing member yoke up and down being constructed and arranged for moving said yoke downwardly slightly and upwardly so that said printing member is first brought into effective contact with said inking pad and then withdrawn instantly therefrom, while said pad is under said printing member.

13. In a printing press, a casing constructed with a throat, a platen adjacent said throat, a pair of yokes pivotally supported in said casing, a printing member carried at the free end of one of said yokes, a guard carried at the free end of the other yoke, cam engageable elements on said printing member and said guard respectively, a driven shaft rotatably mounted in said casing, cams on said shaft for engaging said cam engageable elements respectively on said

printing member and said guard an inking pad and means for actuating said inking pad for inking said printing member previous to each impression thereof.

14. In a printing press, a casing constructed with a throat, a platen adjacent said throat, a pair of yokes pivotally supported in said casing, a printing member carried at the free end of one of said yokes, a guard carried at the free end of the other yoke, cam engagable elements on said printing member and said guard respectively, a driven shaft rotatably mounted in said casing, cams on said shaft for engaging said cam engageable elements respectively on said printing member and said guard.

15. In a printing press, a casing constructed with a throat, a platen adjacent said throat, a pair of yokes pivotally supported in said casing, a printing member carried at the free end of one of said yokes, a guard carried at the free end of the other yoke, cam engagable elements on said printing member and said guard respectively, a driven shaft rotatably mounted in said casing, cams on said shaft for engaging said cam engageable elements respectively on said printing member and said guard, an inking pad, and means for actuating said inking pad for inking said printing member previous to each impression thereof, and an ink distributor for distributing ink on said inking pad previous to each operation of said pad to ink said printing member.

16. In a printing press, a casing constructed with a throat, a platen adjacent said throat, a printing member, means for moving said printing member across said throat toward and away from said platen, a guard embracing said printing member, means for moving said guard in operative relation to said printing member, an inking pad for said printing member, means for moving said inking pad under said printing member while said printing member is elevated to its uppermost position, means for moving said printing member downwardly slightly into contact with said inking pad, and then withdrawing said printing member slightly upwardly from said pad before the printing member is moved downwardly into printing position, means for moving said inking pad from under said printing member while withdrawn slightly upwardly as aforesaid, an ink distributing means comprising an ink reservoir, and means for drawing the ink from said reservoir and distributing the ink over the inking surface of said inking pad when said pad is moved to and from said printing member.

17. In a printing press, the combination of: a printing member adapted to be reciprocated from a retracted position over a given path to accomplish an impression upon an article; means for preventing obtaining a fraudulent impression from said member while in printing position and including a guard movable prior to the making of said impression to grip said article; and a second guard preventing the securing of such a fraudulent impression when said member is in said retracted position, said second guard being reciprocable substantially in a right line movement to substantially cover said printing member when in its retracted position and to uncover said printing member when it is desired to make an impression.

18. A combination as in claim 17 in which said second guard is slidably mounted on said first guard.

19. A combination as in claim 17 in which said second guard is slidably mounted on said first guard; and means connected to said second guard which withdraws this from guarding position when said first guard grips said article.

20. In a printing press the combination of: a reciprocable printing member; primary and secondary guard means to prevent fraudulent impressions being obtained from said member, said secondary guard means being slidable upon said primary guard means; and actuating means for said member and said guard means to position said primary means to guard said member during impression operations and to position said secondary means to guard said member during the intervals between impressions.

21. In a printing press, the combination of: a reciprocable printing member adapted to reciprocate over a given path between retracted and printing positions; a guard extending into said path when said member is in retracted position; and means operating in advance of said member when it traverses said path from retracted position to printing position, said means bodily moving said guard in the same direction as said member and also in a substantially right line movement out of the path of said member.

22. In a printing press, the combination of: a printing arm pivotally supported at one end thereof; a printing member mounted on the free end thereof; a guard arm pivotally supported practically co-axially with said printing arm; a guard slidably mounted on said guard arm; and means for actuating said arms to position said guard in front of said printing member between impressions and remove said guard from before said member during impressions.

23. A combination as in claim 22 in which said guard comprises an ink pad and said actuating means brings said pad and said printing member together prior to displacing said guard.

24. In a printing press, the combination of: a casing; a shaft longitudinally disposed in an upper portion of said casing; a printing arm disposed longitudinally in said cas-

ing beneath said shaft and pivotally mounted at one end on said casing; a printing member mounted on the free end of said arm; a guard arm longitudinally disposed in said casing and pivotally mounted on said casing adjacent the mounting of said printing arm; a guard mounted on said guard arm and normally covering a portion of said printing member; means coacting between the free ends of said arms and said shaft and actuated by the latter to cause said arms to reciprocate in a given direction to effect an impression by said printing member; and means for moving said guard on said guard arm during such reciprocation to uncover said printing member.

25. A combination as in claim 24 in which said guard carries an inker for inking said printing member while said guard is in normal position.

26. A combination as in claim 24 in which said guard carries an inker for inking said printing member while said guard is in normal position; and an ink reservoir on said guard arm having means for dispensing ink onto said inker when said guard moves out of and returns to its normal position.

27. In a printing press, the combination of: a casing having an opening at one end thereof; a printing arm pivotally mounted in said casing at the opposite end and extending practically the length of said casing; a printing member mounted on the free end of said arm; a guard arm pivotally mounted in said casing practically coaxially with said printing arm; a guard mounted on said guard arm and normally covering a portion of said printing member; a shaft journalled in said casing; and means co-acting between said shaft and the free ends of said arms to reciprocate said arms in timed relation; and means for moving said guard on said guard arm during such reciprocation to uncover said printing member.

28. A combination as in claim 27 in which said guard carries an inker adapted to ink said printing member.

29. A combination as in claim 27 in which said guard carries an inker adapted to ink said printing member, and an ink reservoir having a feed roller which delivers ink onto said inker when said inker is out of contact with said printing member.

30. A combination as in claim 27 in which said casing is locked shut and said guard carries an inker, adapted to ink said printing member, and also carries an ink reservoir, said inker being movable relative to said reservoir to receive ink therefrom, there being means for replenishing the ink in said reservoir from outside said casing without unlocking said casing.

31. A combination as in claim 27 in which said guard carries an inker for inking said printing member while said guard is in normal position; and an ink reservoir on said guard arm having means for dispensing ink onto said inker when said guard moves out of and returns to its normal position, said reservoir having an upper portion thereof extending upward past said shaft, there being an opening in said casing through which ink may be supplied to said upper portion of said reservoir.

32. In a printing press, the combination of: a casing having an opening; a platen spaced from said opening to define a throat; a printing member in said casing normally retracted to a position opposite said throat and adapted to be moved towards said throat to accomplish a printing impression; a relatively flat inking pad disposed between said printing member and said throat when said member is in retracted position; and means for supporting said pad for sliding movement into and out of the path of said printing member, said means being shiftable in the direction of movement of said member to assist in moving said pad out of the path of said member and to expose said printing member to permit an impression to be made on an article extending into said throat, said pad supporting means cooperating with said printing member by holding said article against said plate during said impression by said printing member.

33. In a printing press, the combination of: a casing having an opening therein; a printing member in said casing opposite said opening; a relatively flat inking pad normally disposed between said printing member and said opening and spaced from said printing member; means for supporting said pad in its normal position; means causing said pad and said printing member to be pressed together for inking the latter; means for withdrawing said pad in a substantially right line movement from between said printing member and said opening; and means for moving said inked printing member to make an impression on an article adjacent said opening, said pad and said pad supporting means cooperating to guard said printing member against the obtaining of fraudulent impressions therefrom.

34. In a printing press, the combination of: a casing having an opening; a platen spaced from said opening to define a throat; a printing member in said casing normally retracted to a position opposite said throat and adapted to be moved towards said throat to accomplish a printing impression; a relatively flat inking pad disposed between said printing member and said throat when said member is in retracted position; means for supporting said pad for sliding movement into and out of the path of said printing member, said means being shiftable in the direction of movement of said member to assist in moving said pad out of the path

of said member and to expose said printing member to permit an impression to be made on an article extending into said throat; and means for applying ink to said pad when the latter is withdrawn from the path of said impression member, said ink applying means being mounted on said pad supporting means.

In testimony whereof, I hereunto affix my signature this 10th day of November, 1928.

RALPH G. WHITLOCK.